

Case 3078

***Diastylis* Say, 1818 (Crustacea, Cumacea): proposed designation of *Cuma rathkii* Kroyer, 1841 as the type species**

Sarah Gerken

Darling Marine Center, University of Maine, Walpole, Maine 04573, U.S.A.
(e-mail: sgerke51@maine.edu)

Abstract. The purpose of this application is to designate *Cuma rathkii* Kroyer, 1841 as the type species of the genus *Diastylis* Say, 1818. At present the nominal species *Diastylis arenarius* Say, 1818 is the type by monotypy but the original material of this species has been lost and it is not identifiable from its description. The name *Diastylis* is used for a large genus and is the basis of the family-group name DIASTYLIDAE Bate, 1856. Members of the family, which includes more than 200 species, are found world-wide in temperate latitudes and at all depths below the intertidal zone.

Keywords. Nomenclature; taxonomy; Crustacea; Cumacea; DIASTYLIDAE; *Diastylis*; *Diastylis rathkii*.

1. In 1818 Say (p. 313) established the new genus *Diastylis*, and described (p. 314) from the coast of Georgia and Florida the single included species *Diastylis arenarius*, which is therefore the type species by monotypy. The description of the species was detailed for the time but does not allow its distinction from many telson-bearing species of Cumacea. The species was represented by a single male individual.

2. All subsequent authors have considered the species *Diastylis arenarius* Say, 1818 to be of doubtful identity; see, for example, Calman (1912), Zimmer (1941) and Day (1980). Zimmer (1941) suggested that the holotype of *D. arenarius* may have been a specimen of *Oxyurostylis smithi* Calman, 1912. No other specimen has ever been placed in *D. arenarius*.

3. The true identity of Say's (1818) species *Diastylis arenarius* cannot be ascertained. The specimen is lost from the Academy of Natural Sciences in Philadelphia, it was not described in Stebbing's monograph of 1913, and it was never illustrated. Say himself (1818, p. 315) considered *D. arenarius* to be congeneric with *Cancer scorpioides* Montagu, 1804, a species now placed in *Bodotria* Goodsir, 1843 and the non-telson-bearing family BODOTRIIDAE. Currently, family definitions are based in large measure on the presence or absence of a telson, features of the setal armature of the telson, and the number of pleopods in the male. Say's (1818) description of *D. arenarius* noted the presence of a relatively large telson and two pairs of pleopods, characters sufficient to place it within the family DIASTYLIDAE Bate, 1856; however, no characters now considered to be of generic or specific value were given. Say (1818, p. 316) noted that a third nominal species, *Gammarus esca* Fabricius, 1779, was also probably congeneric. The reference to '*Cancer esca* (Gmelin)' by Say was the last use of the name and it has since been treated as a nomen dubium (see Stebbing, 1913 and Băcescu, 1992, p. 425).

4. The name *Diastylis* is much in use and has appeared in publications on cumacean taxonomy (for example, Day, 1980), ecology (for example, Corey, 1976, 1981 and 1983), morphology (for example, Dennell, 1934), histology (for example, Dohle, 1976; Meyer-Rochow, 1989), oceanography (for example, Anger & Valentine, 1976) and biology (for example, Vader & Wolff, 1973), as well as general catalogues and guides (for example, Hayward & Ryland, 1990, pp. 369–370, fig. 9.4; 1996, p. 324, fig. 8.14). Bate (1856, p. 451) established the family DIASTYLIDAE, based on *Diastylis*, and this is also very much referred to in the literature. More than 200 species are currently placed in the family.

5. The unknown identity of the type species of *Diastylis* Say, 1818 threatens the stability of the widely accepted name. As noted above, Say's (1818) description of *D. arenarius* is incomplete and the generic characters of the telson region of *Diastylis* have never been adequately defined. In order to rectify this a new type species must be selected. I propose that *Cuma rathkii* Krøyer, 1841 (p. 513, pl. 5, figs. 19–22, pl. 6, figs. 17–30) be designated as the type species. This species was referred to *Diastylis* by Bate (1856, p. 451), and appears to have been the first species after *D. arenarius* to have been assigned to the genus. *Diastylis rathkii* is probably the best known of all Cumacea. It has a circumpolar range in Arctic seas. There is syntype material in the Zoologisk Museum in Copenhagen (catalog no. CRU-7936). The type locality was cited by Băcescu (1992, p. 307) as 'ved Hornbaek', la partie la plus sud du Kattegat, 56°05'N, 12°28'E, Danmark et 'tilhører ... den grønlandske Fauna'.

6. In a study of South African Cumacea, which included members of the family DIASTYLIDAE, Day (1980, p. 221) noted the shortcomings in the original description of *Diastylis arenarius*, and that the type material has since been lost. She recorded that a diagnosis for *Diastylis* based on *D. rathkii* 'would be adequate for the genus'. She also added that 'finality must await the decision of the International Commission on Zoological Nomenclature, to whom the matter has been referred'. However, an application to the Commission has never been made.

7. The International Commission on Zoological Nomenclature is accordingly asked:

- (1) to use its plenary powers to set aside all previous fixations of type species for the nominal genus *Diastylis* Say, 1818 and to designate *Cuma rathkii* Krøyer, 1841 as the type species;
- (2) to place on the Official List of Generic Names in Zoology the name *Diastylis* Say, 1818 (gender: feminine), type species by designation in (1) above *Cuma rathkii* Krøyer, 1841;
- (3) to place on the Official List of Specific Names in Zoology the name *rathkii* Krøyer, 1841, as published in the binomen *Cuma rathkii* (specific name of the type species of *Diastylis* Say, 1818).

References

- Anger, K. & Valentin, C. 1976. In situ studies on the diurnal activity pattern of *Diastylis rathkei* (Cumacea, Crustacea) and its importance for the 'hyperbenthos'. *Helgoländer Wissenschaftliche Meeresuntersuchungen*, 28(2): 138–144.
- Băcescu, M. 1992. Cumacea 2 (Fam. Nannastacidae, Diastylidae, Pseudocumatidae, Gynodiastylidae et Ceratocumatidae). In Gruner, H.-E. & Holthuis, L.B. (Eds.), *Crustaceorum Catalogus*, part 8. Pp. 175–468. SPB Academic Publishing, The Hague.

- Bate, S. 1856. On the British Diastylidae. *Annals and Magazine of Natural History*, (2)17: 449–465.
- Calman, W.T. 1912. The Crustacea of the Order Cumacea in the collection of the United States National Museum. *Proceedings of the United States National Museum*, 41: 603–676.
- Corey, S. 1976. The life history of *Diastylis sculpta* Sars 1871 (Crustacea: Cumacea) in Passamaquoddy Bay, New Brunswick. *Canadian Journal of Zoology*, 54(5): 615–619.
- Corey, S. 1981. Distribution of certain Arctic and Subarctic Cumacea in Canadian waters. *Canadian Journal of Zoology*, 59(9): 1726–1733.
- Corey, S. 1983. The life history of *Diastylis quadrispinosa* (Sars 1871) (Crustacea: Cumacea) in Passamaquoddy Bay, New Brunswick. *Canadian Journal of Zoology*, 61(1): 108–111.
- Day, J. 1980. South African Cumacea. Part 4: families Gynodiastylidae and Diastylidae. *Annals of the South African Museum*, 82(6): 187–292.
- Dennell, R. 1934. The feeding mechanism of the cumacean crustacean *Diastylis bradyi*. *Transactions of the Royal Society of Edinburgh*, 58(1)(6): 125–142.
- Dohle, W. 1976. Die Bildung und Differenzierung des postnauplialen Keimstreifs von *Diastylis rathkei* (Crustacea, Cumacea): II. Die Differenzierung und Musterbildung des Ektoderms. *Zoomorphologie*, 84(3): 235–277.
- Hayward, P.J. & Ryland, J.S. 1990. *The marine fauna of the British Isles and North-West Europe*, vol. 1. 553 pp. Clarendon Press, Oxford.
- Hayward, P.J. & Ryland, J.S. (Eds.). 1996. *Handbook of the marine fauna of North-West Europe*. 800 pp. Oxford University Press, Oxford.
- Krøyer, H. 1841. Fire nye Arter af Slaegten *Cuma* Edw. *Naturhistorisk Tidsskrift*, 3(6): 503–534.
- Meyer-Rochow, V.B. 1989. A re-investigation and re-interpretation of the cumacean photoreceptor. *Zoologica Scripta*, 18(2): 283–288.
- Say, T. 1818. An account of the Crustacea of the United States (continued). *Journal of the Academy of Natural Sciences of Philadelphia*, 1(11): 313–319.
- Stebbing, T.R.R. 1913. Cumacea. *Das Tierreich*, 39: 1–210.
- Vader, W. & Wolff, W.J. 1973. The Cumacea of the estuarine area of the rivers Rhine, Meuse and Scheldt (Crustacea, Malacostraca). *Netherlands Journal of Sea Research*, 6(3): 365–375.
- Zimmer, C. 1941. Cumacea. *Bronn's Klassen und Ordnungen des Tierreichs*, 5(1,4): 1–222.

Comments on this case are invited for publication (subject to editing) in the *Bulletin*; they should be sent to the Executive Secretary, I.C.Z.N., c/o The Natural History Museum, Cromwell Road, London SW7 5BD, U.K. (e-mail: iczn@nhm.ac.uk).